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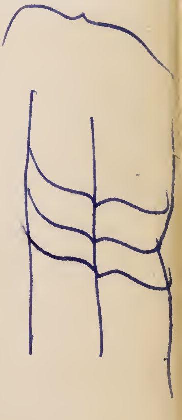

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Light and Shade. *(In preparation.)*
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Outline of Drawing Lessons for Primary Grades.
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The Cross Pencil for use with the slate.
The National Drawing Models.
The National Model Support or Desk Easel.

National Drawing Books

OUTLINE OF DRAWING LESSONS

FOR

PRIMARY GRADES

BY

ANSON K. CROSS

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INTRODUCTION.

The National Course in Drawing is arranged to meet the needs of those teachers who believe that drawing should be taught for itself, and not entirely or principally for its value in other studies. Owing to the special attention given to free-hand drawing, this course will, however, prove of more value as an aid in other studies than any other course in drawing.

It is arranged with the idea that much of the time often spent in modeling, paper cutting and folding, in illustrative work, in ambidextrous exercises, and in working drawings, is wasted; and thus its chief difference from other courses is that free-hand drawing from objects is made the first subject of instruction, and for the first five or six years is, with color and arrangement study, the only work presented.

Besides postponing the scientific work to the upper three grades of the grammar school, this work is made much more simple than that in other courses. It deals with the principles underlying working drawings, and does not include unrelated details of construction, and subjects which cannot be understood by the pupils.

Free-hand drawing of objects is now generally from copies or from dictation, and must be of this nature as long as pupils are not made able to correct their own work.

The Cross Transparent Drawing Slate is the only means ever presented which makes it possible for the pupil to correct his own errors, and thus to learn to draw. The slate renders copies unnecessary except for ornament and for the copying which is desirable, and it enables drawing from the object to be carried on in the public schools so successfully that the average pupil may be able to draw from Nature. It allows the pupils to work and think independently, and thus a widely varied line of work, suited to the capacity of each pupil, may be carried on successfully and with but slight effort on the part of the teacher, most of whose work is best performed by the slate.

The Course is intended to awaken the students to the beauty in Nature and in art, and thus to make them students of Nature. It gives the elements of art instruction in such a way that pupils are prepared to continue their studies in higher schools with nothing to unlearn.

The Course is arranged in such a way that teachers may vary the work to suit any special requirements. Thus less time may be spent upon color or arrangement, and more upon free-hand or working drawings; or any other variation desired may be made without difficulty.

The work in free-hand drawing may seem too difficult to those who have taught without the aid of the Cross Drawing Slate, and with it the work for any grade will be too difficult until the pupils have had the preparation of the previous grades.

The work suggested is what is desirable. It may happen that even after the preparation of all the lower grades, only the strongest pupils of an advanced class will be able to do all the work, and some classes may not be able to do work as difficult as that suggested. This is not unexpected, and is provided for by the use of the slate and of individual models which allow each pupil to do just what he is able, and to work independently from the tablets combined as illustrated, or more simply, without causing additional work for the teacher. If, when drawing from common objects, there is not time for completed work, a drawing well started is certainly better than one complete, but faulty in aim and execution.

The materials for color study are expensive, and some may wish to omit the work which requires the use of colored papers and pigments.

The work in color suggested in this course combines the study of color and arrangement (design). Those who wish to omit the color may do so and make the work the study of design simply, by using plain paper for all the exercises in cutting, folding, and pasting; instead of colored designs in paper or pigments, the units may be used as patterns to give designs in pencil outline. In the upper grades, lessons in design, free-hand drawing, or in working drawings may be given in place of the color work. The manuals on the different subjects are arranged so that teachers may carry any subject much farther than the work suggested for the course, and perfect freedom is given for any changes desired, or necessary, on account of expense.

Drawing is the most difficult subject in which teachers are expected to give instruction. It is one in which the best results cannot be expected until the subject has been systematically taught for several years ; for teachers must acquire knowledge of the subject, and must then discover the best methods of instruction. They must also have pupils who have been prepared for the work by that given in all the preceding grades.

It is impossible to give directions which shall be of equal value to all teachers, for conditions are so unlike in different cities and states that details of matter and arrangement must be left to teachers.

This course in drawing is not presented with the intention that the lessons are always to be given absolutely as planned as to subject or order, and no attempt is made to give directions covering every word the teacher is to say during each different lesson ; for it is impossible to obtain by mechanical means any satisfactory substitute for the trained intellect which must be depended upon to make any instruction successful.

This course is, however, the only one which suggests the work and the time for each lesson from the first year through the grammar school. This is done in order that teachers without experience may be assisted to plan their work, and that they may know about what should be expected of pupils who have had proper study in the preceding grades. When pupils have not had this training, the lessons must be changed to meet the conditions.

"The Outlines of Lessons" are not intended as text-books, and teachers will find in the Manuals on "Free-hand Drawing," "Light and Shade," "Color Study," "Historic Ornament and Design," and "Mechanical Drawing," the information which will assist them to carry on, in their different grades, the work suggested in the outlines of lessons.

The authors wish to acknowledge their indebtedness for many valuable suggestions to Elizabeth Perry, Director of Drawing, Bridgewater, Mass., and Instructor in Drawing, Bridgewater Normal School; Jessie N. Prince, Director of Drawing, Quincy and Milton, Mass.; L. Rena McLauthlin, Director of Drawing, Malden, Mass.; James Hall, Director of Drawing, Danvers, Mass.; Evelyn F. Cross, Director of Drawing, Winchester, Mass.

Teachers desiring information concerning the work of any of the grades, or relating to changes necessary to meet the requirements of their classes, should direct their inquiries to the publishers.

Suggestions will be thankfully received by the authors.

ANSON K. CROSS.
AMY SWAIN.

NATIONAL DRAWING COURSE.

GENERAL PLAN OF WORK.

- Elementary Art Education.
  - Study of Facts.
    - Observation.
    - Modeling.
    - Geometry.
    - Working Drawings.
    - Construction.
  - Study of Appearances.
    - Form.
    - Light and Shade.
    - Color.
  - Study of Decoration.
    - Historic Ornament.
    - Design or Arrangement.
      - Elementary.
      - Applied.
        - Simple principles illustrated by stick and tablet laying, outline, and color, and applied in geometric and floral design, and by the use of historic details.
  - Study of Aesthetics.
    - Study of composition and arrangement.
    - Criticism of original studies from Nature.
    - Study of modern art by means of pictures, illustrated books and magazines.
    - Study of historic art by means of photographs and casts; study at art museums, and lectures on art.

MATERIALS FOR PRIMARY GRADES.

Color. For color materials see Color Manual.

Form. Large type solids for teachers.
Small type solids for pupils.
It is desirable, but not necessary, that each pupil should have a model. . . . One-third as many models as there are pupils will be sufficient.
Sculptors' clay.
Type solids :

1st year. Sphere, cube, cylinder, half-sphere, half-cube, and half-cylinder.

2d year. Forms of the first year, together with the square prism, right-angled triangular prism, equilateral triangular prism, long spheroid, flat spheroid, and ovoid.

3d year. Forms studied previously, and the cone, square pyramid, and circular and square plinths.

Drawing. National Drawing Cards.
Model Supports.
National Drawing Models.
The Cross slate and pencil.
Practice paper or blank books 6″ × 9″.
Manilla paper of which to construct objects.
Pencils of good quality and medium grades.
Soft pencil erasers.
Rulers.

Arrangement. Small tablets. Circles, squares, oblongs, semi-circles, triangles, ellipses and ovals.
Colored sticks from 1″ to 5″ in length.
Colored papers. See Color Manual.
Scissors.
Mucilage. A thick mucilage, made by dissolving gum arabic in cold water, is the best for public school uses.

SUGGESTIONS TO TEACHERS.

TYPE SOLIDS.

Place the type solid to be presented, together with a number of similar objects, on the table and about the room, where the children can easily see and handle all of them.

Have the children observe the appearance and action of the different objects, to discover the qualities common to all, and to discover that the type solid embodies all these qualities.

Give the name of the type solid, and have the children repeat the name as often as possible during the lesson.

Lead the children to appreciate the beauty of the pure type forms.

After each lesson have different children tell stories about the form studied, requiring them to express their thoughts in complete sentences. Ask them to bring objects similar to the type solids. In this way a large collection of common objects will be obtained.

NOTE. — The children must be enthused and not allowed to lose their interest, and each must take some part in every lesson.

NOTE. — If preferred, the type forms may be taught directly from the geometric solids. The children may then discover common objects which have been previously placed about the room and which are similar to the type forms.

SURFACES.

Surfaces are boundaries of solids. They may be curved or plane.

Have children handle the sphere, cube, and cylinder, and discover the different kinds of surfaces. Give terms curved and plane, and lead the children to see that the curved surfaces are not all alike, as some are curved in one direction, and others in all directions.

Have children discover several examples of each kind of surface.

EDGES.

An edge is a termination of a surface, and should be taught from the solids. Have the children move their hands over adjacent surfaces of the cube until they meet at an edge ; then give term edge. Have them move their hands over the curved and plane surfaces of the cylinder until they meet, and apply the term edge.

Have children discover the different kinds of edges and give terms straight and curved.

Edges may be represented by sticks and lines.

CORNER.

A corner is the point in which two or more edges of a solid meet. The term is also applied to the space near the meeting of faces, edges, or lines which intersect. Teach corner from the solid by moving the fingers over the different faces and edges which meet.

LOCATIONS.

Teach locations, right, left, centre, upper, lower, etc., as applied to solids, surfaces, edges and corners, by the use of the solids.

POSITIONS.

Teach from the solids. Observe the surfaces and edges, passing the fingers over them, and compare and describe their positions.

Give terms vertical, horizontal, and oblique.

Have children discover surfaces and edges in these positions about the room, and hold tablets and sticks to represent them, repeating the terms frequently.

RELATIONS.

Teach from the solids by comparing different surfaces and edges with each other, and with the surfaces upon which the solids rest.

Give terms parallel, perpendicular, at an angle, etc.

Lead children to discover examples about the room, illustrating the different relations, and have them lay sticks to represent these.

DIVISIONS.

Divisions may be taught by first modeling a type form, and then cutting it into the required number of parts. Give name of the division.

Equal divisions may be taught by folding narrow strips of paper into the required number of parts.

Have children place sticks on the desks, and arrange others to divide the distances between them into any desired number of equal parts. Give the names of the divisions, and drill in the use of the terms.

An interesting review exercise may be given by having two children stand some distance apart at the front of the room, and asking a third child to come forward and stand just half way between the first two. The children seated just in front of the children standing are to be the judges of the correct division of the distance. Review term bisect. A similar exercise may be given as a review for any division.

JUDGING DISTANCES.

Use first the cube of 1″ and sticks 1″ long until the children can estimate 1″ readily. Then use sticks and objects of definite lengths from 1″ to 5″ until the children can judge these lengths. Have them draw lines on the slate and test their lengths by use of the sticks or ruler.

MODELING.

Sculptors' clay, wire for cutting it, and the glass slate, are all the materials required for use in modeling.

Clay may be bought in brick-shaped pieces, or in quantity packed in jars or barrels. It must be softened in cold water, so that it may be worked easily. It should be kept in earthen jars or in zinc-lined boxes, with wet flannel cloths over it and a rubber cloth outside, to keep it from hardening.

A cube of about 6″ side will furnish clay enough for a class of fifty pupils. The clay should be distributed by the teacher, who passes down alternate aisles and gives to each pupil a rough piece torn from the mass, and large enough to allow an object 1½″ in diameter to be modeled.

Fine wire, which should be bought by the spool, is the best for cutting the clay, and also for fastening together different parts of an object. For this latter purpose the ends of the wire must be bent like a hook, so that the wires may not come out when the clay hardens. Wire, however, should not be used in this way often, as it must be removed from the clay before the clay is put back into the jar, and this makes much extra work for the teacher.

When a modeled object is to be divided, each child should have a piece of wire not less than 6″ long. It should be held firmly by the ends and kept straight by tension, when it will readily cut the clay as desired.

After each lesson the clay should be collected, massed together, and given to the janitor of the school, who should care for and prepare it for the next lesson.

The slate is used to hold the clay, in order that the desk may not be soiled.

In modeling, the child expresses his conceptions of form, and he should not be expected to make a perfect model. He should work wholly with the fingers, and bring the rough mass into the desired form without the use of tools or any mechanical means. When modeling objects having plane surfaces, it is difficult to obtain good edges and corners ; but mechanical aids should not be allowed, as they will lead to inartistic work in modeling, and also in drawing.

The children should bring common objects similar to the type forms, and place them on their desks, in order that they may handle them while modeling.

Memory exercises should be given occasionally.

One or two of the best forms from each lesson should be kept, as a record of the work and to encourage the children. The makers' names may be placed on those kept.

Clay is also helpful in teaching the facts of the solids. A surface of the cube may be impressed in a flattened mass of clay and the other surfaces fitted into the impression, thus proving them alike. The ends of a cylinder or prism may be tested in the same way. The surfaces of the sphere and cylinder may be studied by imbedding the objects half way in the clay, and then withdrawing them and fitting the forms into the impressions when they are differently turned.

Friday is the most convenient day for the lesson in modeling.

FREE ARM MOVEMENTS.

Before giving any drawing lessons, free arm movements may be practised as explained in " Free-hand Drawing." In preparation for this work physical exercises may be given. The children may stand, and move their arms from the shoulder, describing circles, ellipses and straight lines in the air, using first one arm, then the other, and finally both together.

Free arm drawing of circles and straight lines on the slates, or on paper, should be practised for a minute at every drawing lesson, and during any unoccupied time.

Free arm movements may be practised occasionally on the blackboard.

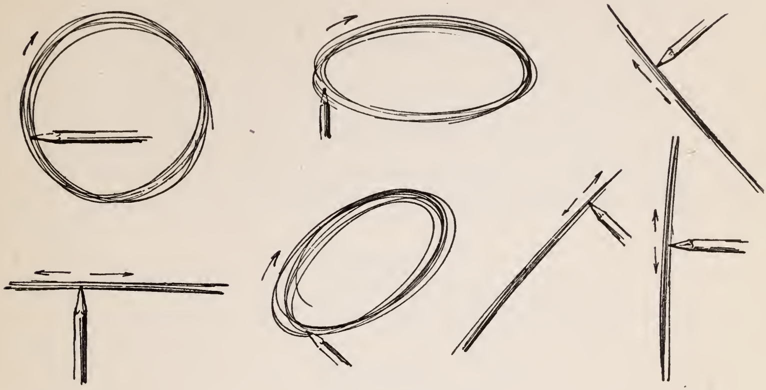
PENCILS AND PENCIL HOLDING.

The pencils for free-hand work should be soft or medium in grade, have round points, and be used as explained in " Free-hand Drawing."

For free arm movements or sketching on the slate and paper, the pencil should be held lightly in the right hand and near the unsharpened end, which is directed towards the palm of the hand.

When drawing lines at one touch, the pencil may be held nearer the point and more firmly.

For positions of the pencil in relation to the different lines, see illustrations.



THE SLATE.

In all the primary work, objects for study are to be placed at the middle of the back of the desk. The slates should rest flat upon the desks while the children are drawing. They should be placed so as to be foreshortened as little as possible, and so the children can draw freely upon them.

When the air is very damp and the slate is cold, the moisture will condense upon it, and the pencil will not mark until the slate has been rubbed with a dry cloth. There are in a school year but few days when this trouble will occur, and it is readily remedied as explained above, or avoided by drawing on paper.

The slate should be cleaned after each lesson, as the lines are more readily removed when first drawn. A dry woolen cloth with a rough surface is the best for this purpose.

DRAWING.

Drawings should be made without placing points for the ends of lines or the corners of figures. All drawing should be done artistically by first suggesting in light lines the form to be represented, and strengthening the lines when the correct ones have been determined. Pupils should not be expected to draw perfect lines, or represent form correctly at first touch. This is impossible for any one.

Dictation methods should not be employed except for dictation work. All drawings in all grades should be begun in a "sketchy" way, by first indicating the principal lines and masses. If pupils begin by placing points, it will be difficult for them to change and consider the masses (the whole), in later work.

COPIES.

All drawings from copy are to be full size, unless otherwise stated, and are to be tested by holding the slate so that the drawing will, as nearly as possible, coincide with the copy. The copies are always to be placed on the model support at the back of the desk, at right angles to the direction in which they are seen, and are not to be withdrawn for testing.

TRACING.

Tracing from the copies or tablets must never be allowed.

TESTING.

Copies.

Copies should be drawn full size on the slate and tested by holding the slate in front of the copy so that the two will coincide if the drawing is correct.

Copies of Regular Polygons.

When the drawings of the true shapes of the circle and regular polygons are smaller or larger than the copy or the tablet, they may be tested by holding the slate so that the drawing and the copy or object appear concentric.

If the drawing is smaller than the copy or tablet, it may be tested by holding the slate between the eye and the object, when the drawing will appear to coincide with the copy or object.

Perspective Appearances.

The drawings involving foreshortening are to be made full size or smaller than the object. In either case they will be tested by holding the slate so that the drawing as nearly as possible covers the object. If the drawing cannot be made to appear to coincide with the object, it is incorrect. The slate must be held exactly at right angles to the direction in which the object is seen, and will not be vertical except when the object is on the level of the eye. See "Free-hand Drawing."

Drawings on Paper.

Drawings made on paper may be tested by tracing them on the slate, and then holding the slate and comparing in the usual way. Drawings from copies, tablets or solids may be made and tested in this way.

INDIVIDUAL STUDY AND RESULTS.

All tablets and objects constructed of them are to be placed on the pupils' desks, and drawn in whole or in part, according to the capacity of the pupil.

POSITIONS OF TABLETS AND OBJECTS.

In arranging tablets and other objects for study, no care should be taken to obtain definite angles, as 60°, 45°, or 30°, etc.

The simplest foreshortened position of the rectangle is when two edges appear horizontal. When the illustrations represent this position, all the tablets of the class should be so placed ; but when the illustrations show tablets at angles, the angles are not specified and are immaterial, and each pupil's may be in a different position.

PENCIL ERASERS.

Erasers should be used as little as possible, and pupils should often be obliged to complete drawings without them. Teachers are to distribute erasers only when their use is considered necessary.

SPECIAL EXERCISES.

It is almost impossible for children who have begun by studying the facts of form and working drawings, to see foreshortening and to make perspective drawings ; but even first grade pupils who have not made working drawings will often make fair drawings of a pail, a tumbler, an apple, or other simple object, and they should be encouraged to make such drawings upon paper occasionally.

Teachers may give a few exercises of this nature in place of a review lesson or a lesson on the slate, at such times as seem best. Only a few lessons of this kind are advisable, as first grade pupils are too young to test perspective drawings by the use of the slate. They can, however, use the slate to test forms which are not foreshortened, and this work will soon enable them to use it for perspective work.

ARRANGEMENT.

Work of this nature must of necessity be very simple. The aim of the work should be to create in the minds of the children a love for beautiful form and pleasing arrangement. Lead them to see that the little borders and rosettes which they make may be used in many ways for decorative purposes. Let the little folks suggest uses for the various arrangements, and apply them when possible.

As children are fond of creating, they are intensely interested in the study of arrangement.

All the principles taught should be illustrated by examples from Nature: thus the children will be led to see that all the principles are based upon natural growth.

REPETITION. — At first the children may be allowed to copy border arrangements from sketches which have been placed upon the blackboard by the teacher.

These should at first include straight lines only, and illustrate the principle of repetition. Teach unit, repeat, and border. Children should copy these borders, first by the use of sticks, and then by drawing on the slate and on paper. Make vertical and horizontal borders.

This work of copying arrangements is of great assistance in leading children to arrange units well in regard to the spaces to be occupied. Lead children to make original arrangements of sticks.

The principle of repetition may now be illustrated by tablet laying, using sticks for border lines. Lead children to produce original work. These arrangements may be reproduced by drawing free-hand, or by tracing around the tablets.

Teach repetition about a centre by the use of sticks and tablets. For example of this principle in Nature, have children observe and talk about the face views of flowers.

When units are repeated about a centre they must be held together by a centre unit of suitable size to give a feeling of strength.

ALTERNATION. — The principle of alternation may be taught by the use of sticks and tablets.

To illustrate this principle, one unit may be repeated by changing its position, thus obtaining *alternation of position:* or different units may be used, thus illustrating *alternation of form.*

CONTRAST AND VARIETY. — By combining tablets of different forms, and lines in different positions, the principles of *contrast* and *variety* are illustrated so as to be readily appreciated.

Varied Geometric Forms. — During the second and third years the geometric forms are varied by cutting, and used as units for border and radial arrangements. If desired, surface arrangements may also be made.

For special directions for varying geometric forms, see "Color Study," Part II, Paper Folding and Cutting.

Application of Principles. — Any or all of these principles may be applied in the color work, by first arranging the design by the use of tablets, or by varying some geometric form, then tracing around the tablets or pattern on the back of the colored paper, and making the required number of units. Cut the units and arrange them on a background. Points may be placed to mark the positions of the units. The spacing is very important, and will require special attention. After the positions of the units have been indicated, they may all be removed and the units then pasted in their respective positions.

For directions for pasting, see "Color Study," Part II, Arrangements of Colored Paper.

Aids. — Any mechanical aids, such as ruler, sticks, placing points for positions of units, or tracing units, are allowable in arrangement work.

For further directions see "Historic Ornament and Design."

REVIEWS.

When a special lesson is devoted to the teaching of some one thought, and this thought is not again presented, pupils will soon forget it. Two or three minutes of each lesson should be spent in review ; thus the children will be kept familiar with the various forms which they have studied during the year.

Almost every drawing, arrangement, and paper folding and cutting lesson affords an opportunity for a review of part if not all of the following facts : vertical, horizontal, oblique, diameter, diagonal, and various divisions, etc.

REFERENCES.

All figures referred to in the Primary Outline of Lessons will be found upon the "National Drawing Copies."

SYNOPSIS. — FIRST YEAR'S WORK.

Plan for thirty-six weeks' work.

Time. Five fifteen-minute lessons each week.

Distribution of Time.

Facts of form (observation)	36	lesson	periods.
Free-hand drawing	69	"	"
Color	19	"	"
Arrangement	11	"	"
Paper folding, cutting, and pasting	30	"	"
Modeling	15	"	"

I. Facts of Form.

1. Teach type solids.
   - Sphere. Half-sphere.
   - Cube. Half-cube.
   - Cylinder. Half-cylinder.
2. Objects similar to the type solids.
3. Teach parts.
   - Surface.
   - Edge.
   - Corner.

   a) Surfaces.
   - Curved.
   - Plane.
     - Square.
       - Diameter.
       - Diagonal.
     - Circle. — Diameter.
     - Oblong.
       - Diameter.
       - Diagonal.
     - Triangle.
     - Semi-circle.

   b) Edges.
   - Straight.
   - Curved.
4. Locations.
   - Right.
   - Left.
   - Centre.
   - Front.
   - Back.
   - Upper.
   - Lower.
   - Above.
   - Below.
   - Upper right.
   - Lower right.
   - Upper left.
   - Lower left.

   As applied to surfaces, edges, and corners.

5. Positions.
   - Vertical.
   - Horizontal.
   - Oblique.
6. Relations.
   - Parallel.
   - At an angle.
     - Right.
     - Acute.

   As applied to surfaces and edges.
7. Divisions.
   - Bisect.
   - Quadrisect.
8. Dimensions.
   - Length.
   - Breadth.
   - Thickness.
9. Judging distances from 1″ to 4″.

II. Construction.

1. Clay modeling.
2. Paper folding and cutting.

III. Free-hand Drawing.

1. Drawing the appearance of form so placed that its true shape is seen.

IV. Color.

1. Study of the spectrum.
2. Laying the spectrum chart.
3. Recognition and naming the six leading colors.

V. Decoration.

Principles.
- Repetition.
- Alternation.
  - Position.
  - Form.

a) Application of these principles by stick and tablet laying, and by drawing.

b) Construction of simple borders and rosettes in one tone of colored paper, using geometric forms as units.

SYNOPSIS.—SECOND YEAR'S WORK.

Plan for thirty-six weeks' work.

Time. — Five fifteen-minute lessons each week.

Distribution of time.

Facts of form (observation)	35	lesson periods.
Free-hand drawing	75	" "
Color	15	" "
Arrangement	9	" "
Paper folding, cutting, and pasting	30	" "
Modeling	16	" "

I. Facts of Form.

- 1. Type Solids.
  - Review
    - Sphere. Half-sphere.
    - Cube. Half-cube.
    - Cylinder. Half-cylinder.
  - Teach
    - Square prism.
    - Right-angled triangular prism.
    - Equilateral triangular prism.
    - Long spheroid.
    - Flat spheroid.
    - Ovoid.
- 2. Objects similar to the type solids.
- 3. Review parts.
  - Surface.
  - Edge.
  - Corner.
- *a*) Surfaces.
  - Curved.
  - Plane.
    - Review
      - Square.
        - Diameter.
        - Diagonal.
      - Circle. —Diameter.
      - Oblong.
        - Diameter.
        - Diagonal.
      - Triangle.
      - Semi-circle.
    - Teach
      - Triangle.
        - Right-angled.
        - Equilateral.
      - Ellipse.
      - Oval.

b) Review edges.
  - Straight.
  - Curved.

4. Review Locations.
   - Right. Upper. Upper left.
   - Left. Lower. Lower right.
   - Centre. Above. Lower left.
   - Front. Below.
   - Back. Upper right.

   As applied to surfaces, edges, and corners.

5. Review Positions.
   - Vertical.
   - Horizontal.
   - Oblique.
6. Relations.
   - Review
     - Parallel.
     - At an angle.
       - Right.
       - Acute.
   - Teach
     - Perpendicular.
     - Obtuse angle.

   As applied to surfaces and edges.

7. Divisions.
   - Review
     - Bisect.
     - Quadrisect.
   - Teach trisect.
8. Review Dimensions.
   - Length.
   - Breadth.
   - Thickness.
9. Judging distances from 1″ to 5″.

II. Construction.

1. Clay modeling.
2. Papér folding and cutting.

III. Free-hand Drawing.

1. Drawing the appearance of form so placed that its true shape is seen.
2. Drawing the foreshortened appearance of single horizontal tablets and of two tablets combined.

IV. Color.

1. Study of the spectrum.
2. Laying of the spectrum chart.
3. Recognition of the six leading colors.
4. Recognition of the tints and shades of the six leading colors.
5. Scales of the six leading colors in five tones.
6. Use of the colored papers in arrangements.

V. Decoration.

- Principles.
  - Review
    - Repetition.
    - Alternation.
      - Position.
      - Form.
  - Teach
    - Contrast.
    - Variety.

a) Application of these principles by stick and tablet laying, drawing, and by varying geometric forms.

b) Construction of borders and rosettes of colored paper, in two or three self tones, using geometric and varied geometric forms as units.

SYNOPSIS. — THIRD YEAR'S WORK.

Plan for thirty-six weeks' work.

Time. — Three twenty-five-minute lessons each week.

Distribution of time.

Facts (observation)	14	lesson	periods.
Free-hand drawing	58	"	"
Color	10	"	"
Arrangement	7	"	"
Paper folding, cutting, and pasting	13	"	"
Modeling	6	"	"

I. Facts of Form.

- 1. Type Solids.
  - Review
    - Sphere. Half-sphere.
    - Cube. Half-cube.
    - Cylinder. Half-cylinder.
    - Square prism. Right-angled triangular prism.
    - Equilateral triangular prism.
    - Long spheroid. Flat spheroid.
    - Ovoid.
  - Teach
    - Cone.
    - Square pyramid.
    - Circular plinth.
    - Square plinth.
    - Quarter cylinder.

2. Objects similar to the type solids.

3. Parts.
   - Review
     - Surface.
     - Edge.
     - Corner.
   - Teach
     - Axis.
     - Apex.

a) Surfaces.
- Curved.
- Plane.
  - Review
    - Square.
      - Diameter.
      - Diagonal.
    - Circle. Teach
      - Circumference.
      - Radius.
    - Oblong.
      - Diameter.
      - Diagonal.
    - Semi-circle.
    - Triangle.
      - Right-angled.
      - Equilateral.
    - Ellipse.
    - Oval.
  - Teach
    - Isosceles triangle.
    - Quadrant.

b) Review Edges.
- Straight.
- Curved.

4. Review Locations.
   - Right.
   - Left.
   - Centre.
   - Front.
   - Back.
   - Upper.
   - Lower.
   - Above.
   - Below.
   - Upper right.
   - Lower right.
   - Upper left.
   - Lower left.

   As applied to surfaces, edges, and corners.

5. Review Positions.
   - Vertical.
   - Horizontal.
   - Oblique.

6. Review Relations.
   - Parallel.
   - Perpendicular.
   - At an angle.
     - Right.
     - Acute.
     - Obtuse.

As applied to surfaces and edges.

7. Review Divisions.
    - Bisect.
    - Quadrisect.
    - Trisect.
8. Review Dimensions.
    - Length.
    - Breadth.
    - Thickness.
9. Judging distances from 1″ to 5″.

II. Construction.

1. Clay modeling.
2. Paper folding and cutting.

III. Free-hand Drawing.

1. Drawing the appearance of form when placed so its true shape is seen.
2. Drawing the foreshortened appearance of single horizontal tablets and of tablets combined in the form of the geometric solids.

IV. Color.

1. Study of the spectrum.
2. Laying the spectrum chart.
3. Recognition of the normals, tints, and shades of the six leading colors.
4. Recognition of the six intermediate colors.
5. Use of colored papers in arrangements.

V. Decoration.

Review Principles.
- Repetition.
- Alternation.
- Contrast.
- Variety.

a) Application of these principles in arrangements, by stick and tablet laying, drawing, and by varying geometric forms.

b) Construction of borders and rosettes of colored paper, using geometric, varied geometric, and leaf forms as units.

OUTLINE OF LESSONS.

Note.—*All the drawing lessons may be upon paper if the slate is not provided; but teachers are advised, if possible, to obtain and use the slate as specified.*

FIRST YEAR.

First Week.

1. Facts. Teach the sphere.
2. Drawing. An exercise upon the use of the slate and pencil.
3. Color. Color Manual, Lesson 1.
4. Drawing. Free arm movements on the slate, or on paper, Figs. 1 and 4.

Note.—All figures referred to under "Drawing" will be found upon the "National Drawing Copies."

5. Modeling. Review and model the sphere.

Second Week.

1. Facts. Review sphere and teach the cube.
2. Drawing. Pencil holding. Free arm movements on the slate, Figs. 1, 3, and 4.
3. Color. Color Manual, Lesson 2.

4. Drawing. Free arm movements on the slate, up and down, also across, to form the square, but do not give its name.
5. Modeling. Review and model the cube.

Third Week.

1. Facts. Review cube and teach the cylinder.
2. Drawing. Draw on the slate Fig. 18. Do not trace.

Note.—All drawings from copy are to be full size unless otherwise stated, and are to be tested by holding the slate so that the drawing will as nearly as possible coincide with the copy. The copies are always to be placed on the model support at the back of the desk and at right angles to the direction in which they are seen.

Tracing from the copies or tablets must never be allowed.

3. COLOR. Color Manual, Lesson 3.
4. DRAWING. Draw on the slate Fig. 19.
5. MODELING. Review and model the cylinder.

Fourth Week.

1. FACTS. Review sphere, cube, and cylinder.
2. DRAWING. Draw on the slate Fig. 18.
3. COLOR. Color Manual, Lesson 4.
4. CUTTING. Teach the use of the scissors, and practise cutting to ruled lines. Use common ruled paper.
5. MODELING. Each child bring an apple or any spherical object and model the same.

NOTE.—For all lessons in modeling forms similar to the type solids, each child should bring an object and place on his desk, and endeavor to reproduce its exact form.

Fifth Week.

1. FACTS. Teach right, left, front, and back.
2. DRAWING. Draw on the slate Fig. 19.
3. COLOR. Color Manual, Lesson 5.
4. CUTTING. Trace around a 2½″ circular tablet on practice paper and cut.
5. MODELING. Each child bring an object similar to the cube, and model the same.

Sixth Week.

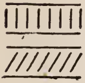
1. FACTS. Review right, left, front, and back. Teach centre, above, and below.

NOTE.—Two or three minutes may be devoted at the beginning or close of any lesson, to reviewing locations. Repeat this as often as is necessary.

2. DRAWING. Free arm movements, Figs. 2, 5, and 6.
3. FACTS. Teach surface. Teach curved and plane surfaces.
4. DRAWING. Review circular free arm movement on paper.
5. CUTTING. Trace around a small circular tablet on practice paper, and cut as many as the time will allow.

Seventh Week.

1. FACTS. Review sphere, cube, and cylinder.



Suggestions.

2. DRAWING. Review straight line movements on the slate, and draw single straight lines at one touch.
3. ARRANGEMENT. Teach border. Arrange sticks to form a border.
4. DRAWING. Draw on the slate Fig. 30.
5. MODELING. Each child model from an object similar to the cylinder.

Eighth Week.

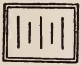
1. ARRANGEMENT. Color Manual, Lesson 6.
2. COLOR. Color Manual, Lesson 7.
3. CUTTING. Color Manual, Lesson 8.
4. PASTING. Color Manual, Lesson 9.
5. PASTING. Color Manual, Lesson 10.

Ninth Week.

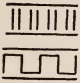
1. FACTS. Teach edge. Teach straight and curved edges. Find all the straight and curved edges of the solids.
2. DRAWING. Draw on the slate Figs. 7, 8, and 9.

NOTE.—Lines drawn from copies must give the positions and real lengths of the copies.

3. COLOR. Color Manual, Lesson 11.



4. DRAWING. Give a dictation exercise, including straight lines only. Draw on the slate.



Suggestions.

5. ARRANGEMENT. Review repetition and make a border arrangement, using 1″ red sticks.

Tenth Week.

1. FACTS. Review edge and teach corner.
2. DRAWING. Review straight free arm movements and draw on the slate Figs. 7, 10, and 11.
3. COLOR. Color Manual, Lesson 12.
4. DRAWING. Draw on the slate Fig. 31.
5. CUTTING. Trace around a $2\frac{1}{2}''$ square tablet on practice paper and cut.

Eleventh Week.

1. Facts. Teach upper right, lower right, upper left, and lower left.
2. Drawing. Draw on the slate Figs. 49 and 50.

Note. — If preferred, leaves may be drawn from Nature. Place the leaves on the model support so that their true shapes are seen.

3. Color. Color Manual, Lesson 13.
4. Drawing. Drill in judging lengths from 1″ to 4″ by drawing lines on the slate and testing by the use of sticks.

Note. — A minute or two may be devoted occasionally to judging lengths from 1″ to 4″. Use sticks or a ruler for testing.

5. Modeling. Part of the class model the sphere, part the cube, and the rest the cylinder.

Twelfth Week.

1. Facts. Review surfaces and teach square and circle.
2. Drawing. Draw on paper Figs. 18 and 19.
3. Color. Color Manual, Lesson 14.

4. Drawing. Place a 2½″ circular tablet on the model support so that its real shape is seen and draw full size on the slate. Test by holding the slate as in drawing from copy. Do not trace.

Note. — All tablets are to be placed so as to appear their true shapes. Drawings from them are to be tested by holding the slate in front of the tablet and parallel to it, so that the drawing will as nearly as possible appear to coincide with the tablet. The drawings are to be full size unless otherwise specified. In testing, the tablets are never to be taken from the model support.

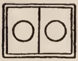
5. Modeling. Part of the class model objects similar to the sphere, part model objects similar to the cube, and the rest model objects similar to the cylinder.

Thirteenth Week.

1. Arrangement. Color Manual, Lesson 15.
2. Color. Color Manual, Lesson 16.
3. Cutting. Color Manual, Lesson 17.
4. Pasting. Color Manual, Lesson 18.
5. Pasting. Color Manual, Lesson 19.

Fourteenth Week.

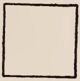
1. Facts. Review sphere, cube, and cylinder, as wholes.
2. Drawing. Draw on the slate Fig. 55.



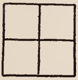
3. Drawing. Dictation exercise on the slate, including straight lines and circles.
4. Drawing. Draw on paper Fig. 30.
5. Cutting. Trace around a 2½″ circular tablet on practice paper and cut.

Fifteenth Week.

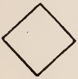
1. Facts. Review sphere, cube, and cylinder as to surfaces, edges, and corners.



2. Drawing. Draw on the slate the square tablet placed as illustrated.



3. Cutting and Folding. Trace around a 2½″ square tablet on practice paper and cut. Fold as illustrated.
4. Drawing. Draw on the slate Fig. 31.



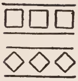
5. Drawing. Draw on the slate the square tablet placed as illustrated.

Sixteenth Week.

1. Facts. Teach vertical, as applied to surfaces and edges.
2. Facts. Review vertical and teach horizontal as applied to surfaces and edges.
3. Drawing. Draw on the slate Figs. 7, 8, 10, and 11.
4. Drawing. Draw on paper, from dictation, straight lines of definite lengths. Test by applying sticks.
5. Cutting. Trace around a small circular tablet on practice paper. Cut as many as the time will allow.

Seventeenth Week.

1. Facts. Review vertical and horizontal, and teach oblique.
2. Drawing. Draw on the slate Figs. 9, 12, and 17.

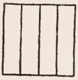


Suggestions.

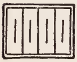
3. Arrangement. Review repetition, and make a border of square tablets.
4. Drawing. Draw on the slate the border arranged yesterday.
5. Drawing. Draw on the slate Fig. 58.

Eighteenth Week.

1. Facts. Review cube and square, and teach parallel.



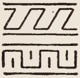
2. Cutting and Folding. Trace around a 2½″ square tablet on practice paper and cut. Make parallel folds as illustrated.
3. Color. Color Manual, Lesson 20.
4. Drawing. Draw on the slate Fig. 21.



5. Drawing. Give a dictation exercise which includes parallel lines. Draw on the slate.

Nineteenth Week.

1. Facts. Review sphere, cube, and cylinder as to wholes and parts.
2. Drawing. Draw on the slate Fig. 18, smaller than the copy. Test by holding the slate so that the drawing and the copy are concentric.
3. Color. Color Manual, Lesson 21.
4. Drawing. Draw on the slate Fig. 56.



5. Arrangement. Make a border arrangement of sticks.

Suggestions.

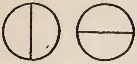
Twentieth Week.

1. Facts. Review locations.

2. Drawing. Review centre. Draw on paper a square and circle, and place points to mark the centres.
3. Color. Color Manual, Lesson 22.
4. Modeling. Model the sphere, and bisect by the use of a fine wire. Teach bisect.
5. Facts. Review bisect.

Twenty-first Week.

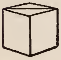
1. Facts. Teach half-sphere.



2. Drawing. Draw on the slate from memory two circles, and test by Fig. 18. Bisect in different ways.
3. Drawing. Draw on the slate Figs. 51 and 52.
4. Drawing. Draw on the slate Figs. 8, 9, and 12. Bisect.
5. Arrangement. Color Manual, Lesson 23.

Twenty-second Week.

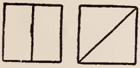
1. Color. Color Manual, Lesson 24.
2. Cutting. Color Manual, Lesson 25.
3. Pasting. Color Manual, Lesson 26.
4. Pasting. Color Manual, Lesson 27.



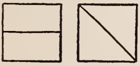
5. Modeling. Model the cube, and bisect as illustrated.

Twenty-third Week.

1. Facts. Teach half-cube.



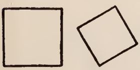
2. Cutting and Folding. Trace around a 2½″ square tablet on practice paper and cut. Fold, and cut to bisect the squares in different ways. Have part of the class fold one way, and the rest the other way.



3. Drawing. Draw on the slate from dictation two squares. Bisect them in different ways.
4. Drawing. Draw on the slate Fig. 45.
5. Drawing. Draw on paper, from dictation, straight lines of definite lengths. Bisect.

Twenty-fourth Week.

1. Facts. Review half-sphere and half-cube.



2. Drawing. Draw on the slate a square tablet, appearing a square, and placed as illustrated.
3. Drawing. Draw on paper Fig. 55 or 56.

4. Drawing. Draw on the slate, from memory, the square and circle. Draw lines in different positions.

5. Modeling. Model the cylinder and bisect as illustrated.

Twenty-fifth Week.

1. Facts. Teach half-cylinder.
2. Facts. Review half-sphere, half-cube, and half-cylinder.
3. Folding and Cutting. A wind-wheel. Trace around a 2½″ square tablet on practice paper and cut. Fold the square on line *a*, Fig. 1. Unfold and fold on line *b*. Cut on the folds nearly to the centre as indicated by the heavy lines in Fig. 2. Make pin holes at points *c*, *d*, *e*, *f*, and *g*, as in Fig. 2, and, passing a pin through holes *c*, *d*, *e*, and *f* successively, and keeping the corners on the pin, pass the pin through the centre *g* of the square. This forms Fig. 3, an amusing toy for the little folks. Time, twenty minutes.

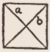


Fig. 1.

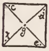


Fig. 2.

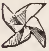
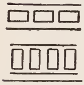


Fig. 3.

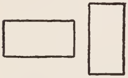
4. Drawing. Draw on paper Fig. 45.
5. Modeling. Pupils bring objects similar to the half-sphere and model the same.

Twenty-sixth Week.

1. Facts. Teach oblong.


Suggestions.

2. Drawing. Draw on the slate Fig. 22.
3. Arrangement. Make a border arrangement, using oblong tablets.



4. Drawing. Draw on the slate the oblong tablet placed as illustrated.
5. Modeling. Pupils bring objects similar to the half-cube and model the same.

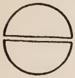
Twenty-seventh Week.

1. Facts. Review oblong and teach triangle.
2. Drawing. Draw on the slate Fig. 23.
3. Folding and Cutting. An illustrated talk by the teacher on varying the square. See Color Manual, Part II, "Paper Folding and Cutting."

4. Drawing. Draw on the slate Fig. 26.
5. Modeling. Model from objects similar to the half-cylinder.

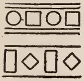
Twenty-eighth Week.

1. Facts. Teach semi-circle.
2. Drawing. Draw on the slate Fig. 20.



3. Cutting and Folding. Trace around a $2\frac{1}{2}''$ circular tablet on practice paper and cut. Bisect by folding and cutting to form the semi-circle. Keep.

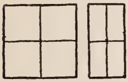
4. Drawing. Draw on the slate from the semi-circle cut yesterday, or from Fig. 20.



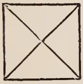
Suggestions.

5. Arrangement. Review alternation of position and form. Make a border arrangement illustrating this principle.

Twenty-ninth Week.



1. Facts. Teach diameter by folding paper circles, squares, and oblongs.

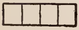


2. Facts. Teach diagonal by folding paper squares and oblongs.

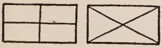
3. Color. Color Manual, Lesson 28.
4. Facts. Teach angle. Teach right and acute angles.
5. Drawing. Draw on the slate Figs. 13, 14, and 16.

Thirtieth Week.

1. Facts. Review bisect and teach quadrisect.



2. Cutting and Folding. Cut a narrow strip about 4″ long from practice paper. Quadrisect by folding. Review quadrisect and right angles.



3. Drawing. Bisect the slate by lines parallel to its edges. Erase and draw a horizontal oblong 2″ × 4″ and quadrisect this in different ways. Review diameter and diagonal.

4. Drawing. Draw on the slate Fig. 46 or 47.

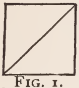


Fig. 1.

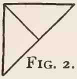


Fig. 2.

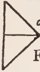


Fig. 3.

Fig. 4.

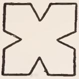


Fig. 5.

5. Folding and Cutting. Trace around a 2½″ square tablet on practice paper and cut. Fold on diagonals and diameters as illustrated in Figs. 1, 2, and 3. Draw *a b* as in Fig. 4 and cut. Unfold and obtain Fig. 5.

Thirty-first Week.

1. Folding and Cutting. Color Manual, Lesson 29.
2. Color. Color Manual, Lesson 30.

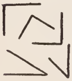
3. 4. 5. Making a Blotter. Trace around a 2½″ square tablet on gray paper. Trace around a 2½″ square tablet twice on blotting paper. Cut the squares traced on the gray and blotting papers. Paste the varied square cut Tuesday on the gray square, and this on one square of blotting paper. This may then be pasted to the second square of blotting paper. Paste the blotting paper in the centre only. This forms a blotter.

Thirty-second Week.

1. Facts. Review sphere and half-sphere.
2. Drawing. Draw on the slate Figs. 53 and 54.
3. Facts. Review cube and half-cube.
4. Drawing. Trace around a 2½″ square tablet on practice paper, and cut. Fold on one diagonal and cut. If there is time, draw on the slate the triangular tablet thus formed.
5. Drawing. Draw on paper Figs. 37 and 38.

Thirty-third Week.

1. Facts. Review cylinder and half-cylinder.
2. Drawing. Draw on the slate Fig. 32.
3. Drawing. Draw on the slate Fig. 57.
4. Drawing. Draw on paper any two leaves on Drawing Card 11



5. Drawing. Lay sticks to represent right and acute angles. Draw right and acute angles on the slate.

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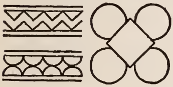
Thirty-fourth Week.

1. Drawing. Draw on the slate, from memory, a square and oblong, and draw diameters and diagonals.
2. Drawing. Draw on the slate, from dictation, parallel lines of definite lengths. Bisect and quadrisect the lines drawn.
3. Color. Color Manual, Lesson 31.
4. Drawing. Draw on paper Fig. 33 or 41.
5. Drawing. Draw on paper Fig. 57 or 58.

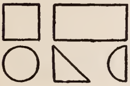
Thirty-fifth Week.

1. Facts. Describe from memory the type solids studied this year.



Suggestions.

2. Arrangement. Make an original border or radial arrangement of tablets, using any of the forms studied.
3. Drawing. Draw on paper, from dictation, straight lines of definite lengths. Bisect and quadrisect.



4. Drawing. Draw on the slate, from memory, the forms studied this year.
5. Arrangement. Color Manual, Lesson 32.

Thirty-sixth Week.

1. Color. Color Manual, Lesson 33.
2. Cutting. Color Manual, Lesson 34.
3. Pasting. Color Manual, Lesson 35.
4. Pasting. Color Manual, Lesson 36.
5. Modeling. Each pupil model any desired object similar to a type solid.

OUTLINE OF LESSONS.

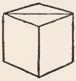
SECOND YEAR.

First Week.

1. Facts. Review sphere and half-sphere as wholes.
2. Drawing. Free arm movements round and round, and up and down.
3. Drawing. Draw on the slate Fig. 18.
4. Drawing. Review free arm movements on the slate, and draw straight lines at one touch.
5. Modeling. Model the sphere, and bisect to form the half-sphere.

Second Week.

1. Facts. Review cube and half-cube as wholes.
2. Drawing. Draw on the slate Fig. 19.
3. Cutting. Trace around the small square and circular tablets on practice paper, and cut as many as the time will allow.
4. Drawing. Draw on the slate Fig. 21.



5. Modeling. Model the cube, and bisect as illustrated, to obtain the half-cube.

Third Week.

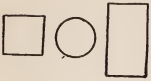
1. Facts. Review cylinder and half-cylinder as wholes.

2. Drawing. Draw on the slate the circular tablet, full size and smaller.
3. Drawing. Draw on the slate Fig. 22.
4. Drawing. Draw on the slate Fig. 59.

5. Modeling. Model the cylinder, and bisect as illustrated, to form the half-cylinder.

Fourth Week.

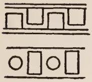
1. FACTS. Review surface, curved and plane, and have children discover several examples of each.



2. DRAWING. Draw on the slate from memory, a square, circle, and oblong.

3. DRAWING. Draw on the slate Fig. 30 or 31.

4. DRAWING. Draw on the slate from a tag or Fig. 36.

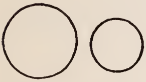


Suggestions.

5. ARRANGEMENT. Make an original border of tablets, using any of the forms studied as units.
Review repetition and alternation.

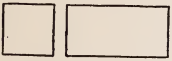
Fifth Week.

1. FACTS. Review edges, straight and curved.
Review square and circle.



2. DRAWING. Draw on the slate the circular tablet, full size and smaller.

3. COLOR. Color Manual, Lesson 1.

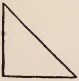


4. DRAWING. Draw on the slate the square and oblong tablets, placed as illustrated.

5. FOLDING AND CUTTING. An illustrated talk by the teacher on paper folding and cutting. See Color Manual, Part II, "Paper Folding and Cutting."

Sixth Week.

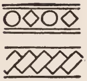
1. FACTS. Review oblong, triangle, and semi-circle.



2. DRAWING. Draw on the slate the triangular tablet.

3. COLOR. Color Manual, Lesson 2.

4. DRAWING. Draw on the slate from single leaves so placed on the model support that their true shapes are seen



Suggestions.

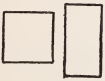
5. Arrangement. Make a border of tablets, using squares, circles, or oblongs.

Seventh Week.

1. Facts. Teach prism.
2. Drawing. Draw on the slate Fig. 35.
3. Color. Color Manual, Lesson 3.
4. Drawing. Draw on the slate Fig. 60.
5. Cutting. Trace around small tablets of any of the forms studied, on practice paper, and cut.

Eighth Week.

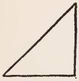
1. Facts. Teach square prism.



2. Drawing. Draw on the slate the square and oblong tablets placed as illustrated.
3. Color. Color Manual, Lesson 4.
4. Drawing. Draw on the slate Fig. 40.
5. Modeling. Review and model the square prism.

Ninth Week.

1. Facts. Teach triangular prism.



2. Drawing. Draw on the slate the triangular tablet formed by cutting a $2\frac{1}{2}''$ square on a diagonal. Place so its true shape is seen.
3. Drawing. Draw on the slate Fig. 38.
4. Color. Color Manual, Lesson 5.
5. Folding and Cutting. Trace around a $2\frac{1}{2}''$ square tablet on practice paper and cut. Fold on diagonals and diameters as illustrated. Draw line *a b*, Fig. 4. Cut and unfold to obtain Fig 5.

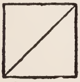


Fig. 1.

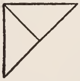


Fig. 2.

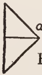


Fig. 3.

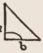


Fig. 4.

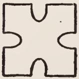


Fig. 5.

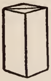
Tenth Week.

1. Arrangement. Color Manual, Lesson 6.
2. Color. Color Manual, Lesson 7.
3. Cutting. Color Manual, Lesson 8.
4. Pasting. Color Manual, Lesson 9.
5. Pasting. Color Manual, Lesson 10.

Eleventh Week.

1. Facts. Review triangle and teach right-angled and equilateral triangles.

2. Drawing. Draw on the slate Fig. 25. If there is time, draw the triangular tablet full size and real shape.
3. Drawing. Draw on the slate Fig. 42.
4. Drawing. Draw on the slate Fig. 23, or the right-angled triangular tablet.



5. Modeling. Model a square prism and bisect as illustrated.

Twelfth Week.

1. Facts. Teach right-angled and equilateral triangular prisms.

2. Drawing. Draw on paper the equilateral triangular tablet, appearing its real shape.
3. Cutting. Trace around oblong and equilateral triangular tablets on practice paper and cut.
4. Drawing. Draw on the slate Fig. 44.
5. Modeling. Model the equilateral triangular prism.

Thirteenth Week.

1. Facts. Review vertical, horizontal, and oblique, as applied to surfaces and edges.
2. Drawing. Draw on the slate, from dictation, straight lines of definite lengths in various positions. Test by applying sticks.
3. Arrangement. Lay with sticks the border Fig. 62.

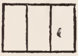
4. Drawing. Draw on paper Fig. 40.
5. Modeling. Children bring objects similar to the square prism and model the same.

Fourteenth Week.

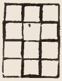
1. Facts. Review parallel, as applied to surfaces and edges. Find examples.
2. Drawing. Draw from memory the square, the oblong, and the triangle.
3. Color. Color Manual, Lesson 11.
4. Drawing. Draw an oblong 3″ × 4″ on practice paper. Test by the use of the sticks. Cut and keep.
5. Modeling. Model any object similar to the equilateral triangular prism.

Fifteenth Week.

1. Facts. Review bisect and quadrisect and teach trisect.



2. Drawing. Draw on paper an oblong 3″ × 4″ and trisect it.
3. Color. Color Manual, Lesson 12.
4. Drawing. Draw on the slate Fig. 48.

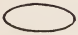


5. Folding and Cutting. Using the oblong cut last week, trisect the short edges and fold through these points. Quadrisect the long edges and fold through these points. Cut on the folds indicated by the heavy lines. This forms the Latin cross.

Sixteenth Week.

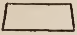
1. Arrangement. Color Manual, Lesson 13.
2. Color. Color Manual, Lesson 14.
3. Cutting. Color Manual, Lesson 15.
4. Cutting. Color Manual, Lesson 16.
5. Pasting. Color Manual, Lesson 17.

Seventeenth Week.

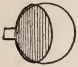


1. Drawing. Place a circular tablet horizontally at the back of the desk, and draw its appearance on the slate. Test by holding the slate so that the drawing will appear to coincide with the tablet.

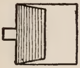
2. DRAWING. Draw on the slate from the large square tablet placed horizontally in the middle of the back of the desk, with its edges parallel to those of the desk.



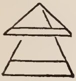
3. DRAWING. Trace around a $2\frac{1}{2}''$ circular tablet on practice paper. Cut the circle, leaving a projecting piece as illustrated. Place the circle against the back of the slate and trace its real shape. Then fold the circle back and compare its foreshortened appearance with its real shape. See illustration.



NOTE.—Hold the slate at right angles to the direction in which it is seen.



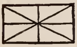
4. DRAWING. Trace around a $2\frac{1}{2}''$ square tablet on practice paper. Cut the square, leaving a projecting piece at one side. Experiment as with the circle to show the foreshortened appearance.



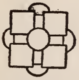
5. DRAWING. Experiment with circular and square tablets. Hold them on a level with the eye and horizontal. Hold them at other levels and study appearances. Children describe, and draw horizontal tablets.

Eighteenth Week.

1. FACTS. Review angles, right and acute.
2. FACTS. Review diameters and diagonals by folding circles, squares, and oblongs.



3. DRAWING. Draw on the slate an oblong tablet, placed as illustrated. Draw diameters and diagonals.

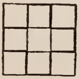


Suggestion.

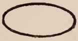
4. ARRANGEMENT. Make an original arrangement of tablets, using any of the forms studied.
5. MODELING. Model some object similar to the right-angled triangular prism.

Nineteenth Week.

1. FACTS. Review parallel and teach perpendicular.



2. DRAWING. Dictation exercise, including lines which are perpendicular.
3. DRAWING. Draw on the slate Fig. 34.



4. DRAWING. Draw on the slate the appearance of a horizontal circular tablet.

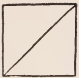


Fig. 1.

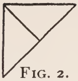


Fig. 2.

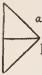


Fig. 3.

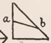


Fig. 4.

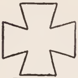
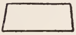


Fig. 5.

5. Folding and Cutting. Trace around a $2\frac{1}{2}$ square tablet on practice paper and cut. Fold on its diagonals and diameters. Draw *a b* in Fig. 4, and cut. Unfold and obtain Fig. 5, the Maltese cross.

Twentieth Week.

1. Facts. Review the prisms.
2. Drawing. Draw on paper the square, oblong, or triangle, from the tablet placed to appear its real shape.
3. Drawing. Draw on the slate the circular tablet placed horizontally at the back of the desk.



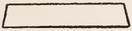
4. Drawing. Draw on the slate the horizontal square tablet, placed as illustrated.
5. Drawing. Exercise in judging distances from 1″ to 5″. Draw lines on the slate.

Twenty-first Week.

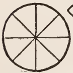
1. Facts. Review locations.
2. Drawing. Draw on paper the horizontal circular tablet.
3. Color. Color Manual, Lesson 18.
4. Drawing. Draw on paper Fig. 36.
5. Drawing. Draw on the slate Fig. 43. Teach trefoil.

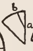
Twenty-second Week.

1. Facts. Review square, circle, and oblong.
2. Facts. Review triangle and semi-circle.
3. Color. Color Manual, Lesson 19.



4. Drawing. Draw on the slate an oblong tablet, placed horizontally, with its edges parallel to those of the desk.





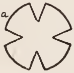


Fig. 1. Fig. 2. Fig. 3.

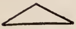
5. Folding and Cutting. Trace around a $2\frac{1}{2}''$ circular tablet on practice paper and cut. Fold three times, and obtain Fig. 2. Teacher draw and cut *a b*, and children make original variations.

Twenty-third Week.

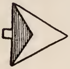
1. Facts. Review angles, right and acute, and teach obtuse. Find examples of each.
2. Folding and Cutting. Color Manual, Lesson 20.
3. Color. Color Manual, Lesson 21.
4. Cutting. Color Manual, Lesson 22.
5. Pasting. Color Manual, Lesson 23.

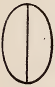
Twenty-fourth Week.

1. Facts. Teach long and flat spheroids.
2. Drawing. Place a triangular tablet horizontally at the back of the desk, with one edge parallel to the back edge of the desk. Draw its appearance on the slate. If there is time, place the object on the model support and draw again.



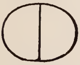
3. Drawing. Trace around a $2\frac{1}{2}''$ equilateral triangular tablet on practice paper. Cut the triangle, leaving a projecting piece at one side, as illustrated. Place the triangle against the back of the slate and trace its real shape. Then swing the triangle back and observe its foreshortened appearance. Children describe appearance.





4. Modeling. Model the long spheroid, and bisect as illustrated.

Note.—If desired, a sphere may first be modeled, and the long spheroid developed from it by rolling, and at the same time slightly rotating the form.

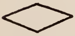


5. Modeling. Model the flat spheroid, and bisect as illustrated.

Note.—If desired, a sphere may be modeled and the flat spheroid developed from it by slightly rotating the form while pressure in opposite directions is applied.

Twenty-fifth Week.

1. Facts. Review the spheroids and teach ellipse.
2. Drawing. Draw on the slate Fig. 24.
3. Drawing. Draw on the slate Fig. 27.
4. Drawing. Draw on the slate a horizontal square tablet, placed so that its edges are not parallel to those of the desk.



5. Modeling. Model any object similar to the long spheroid.

Twenty-sixth Week.

1. Facts. Review sphere, cube, and cylinder.
2. Facts. Review half-sphere, half-cube, and half-cylinder.
3. Arrangement. Make a radial arrangement of tablets, using any of the forms studied.
4. Drawing. Draw on the slate Fig. 39.
5. Modeling. Model any object similar to the flat spheroid.

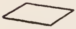
Twenty-seventh Week.

1. Folding and Cutting. Color Manual, Lesson 24.
2. Color. Color Manual, Lesson 25.
3. Cutting. Color Manual, Lesson 26.

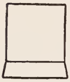
4. }
5. } Making a Match–Scratcher. Cut a square or circle of sand-paper the size of the background of the design completed yesterday. Paste the design on the back of the sand-paper. Tie with narrow ribbon the color of the decoration.

Twenty-eighth Week.

1. Facts. Teach the ovoid.
2. Drawing. Draw on the slate Fig. 61 or 62.



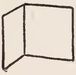
3. Drawing. Draw on the slate the horizontal square tablet.



4. Drawing. Combine two square tablets, and place as illustrated. Draw one or both tablets on the slate.
5. Modeling. Model the ovoid, and bisect it on a long diameter. Keep for Monday's lesson.

Twenty-ninth Week.

1. Facts. Teach oval.
2. Drawing. Draw on the slate Figs. 28 and 29.



3. Drawing. Draw on the slate two vertical square tablets, at right angles to each other.

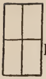


FIG. 1.

FIG. 2

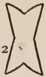
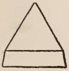


FIG. 3.

4. Folding and Cutting. Trace around a large oblong tablet on practice paper, and cut. Fold on its diameters, and make original variations. See illustration for suggestions. Time, twenty minutes.
5. Modeling. Model any object similar to the ovoid.

Thirtieth Week.

1. Facts. Review the prisms.
2. Drawing. Draw on the slate Fig. 71.
3. Arrangement. Draw on paper an original arrangement for a border, using any of the forms studied.
4. Drawing. Draw on paper Fig. 34.



5. Drawing. Draw on the slate the square and triangular tablets, combined as illustrated, or draw one of the tablets.

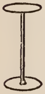
Thirty-first Week.

1. Folding and Cutting. Color Manual, Lesson 27.
2. Color. Color Manual, Lesson 28.
3. Cutting. Color Manual, Lesson 29.

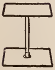
4. 5. } Pasting. Color Manual, Lessons 30, 31.

Thirty-second Week.

1. Facts. Drill in judging lengths of objects from 1′ to 5″. Test by applying sticks or a ruler.



2. Drawing. Draw on the slate two circular tablets connected by a vertical rod, as illustrated, or draw one of the tablets.



3. Drawing. Draw on the slate two horizontal square tablets, as illustrated, or a single square tablet.
4. Drawing. Place a single leaf on the model support so that its real shape is seen, and draw on the slate.
5. Drawing. Draw on paper Fig. 42 or 44.

Thirty-third Week.

1. Facts. Review sphere, cube, and cylinder as to wholes and parts.
2. Facts. Review half-sphere, half-cube, and half-cylinder, as to wholes and parts.
3. Drawing. Place a leaf on the model support so that its true shape is seen, and draw on the slate.
4. Drawing. Draw on paper an envelope so placed on the model support that its true shape is seen ; or Fig. 35.
5. Drawing. Draw on the slate Fig. 72.

Thirty-fourth Week.

1. Facts. Review square prism, right-angled triangular prism, and equilateral triangular prism as to wholes and parts.
2. Facts. Review spheroids, ellipse, ovoid, and oval.
3. Drawing. Draw on paper any figure on Drawing Card 13.
4. Drawing. Draw on the slate Fig. 47.
5. Arrangement. Color Manual, Lesson 32.

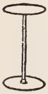
Thirty-fifth Week.

1. Color. Color Manual, Lesson 33.
2. Cutting. Color Manual, Lesson 34.
3. Cutting. Color Manual, Lesson 35.

4. }
5. } Pasting. Color Manual, Lessons 36 and 37.

Thirty-sixth Week.

1. Facts. Recognition of the type solids by sight and touch ; also a description from memory.
2. Drawing. Draw on paper a single leaf so placed that its real shape is seen. If there is time, exchange leaves and draw again.



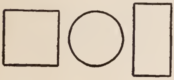
3. Drawing. Draw on the slate the tablets, combined as illustrated, or one of them.
4. Drawing. Draw on paper as much of the object drawn yesterday as can be completed in the time.
5. Modeling. Each child model an object similar to any type solid studied this year.

OUTLINE OF LESSONS.

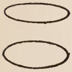
THIRD YEAR.

First Week.

1. Facts. Review sphere, cube, and cylinder, as wholes, by sight and touch.



2. Drawing. Draw on the slate the tablets illustrated, so placed that their true shapes are seen.



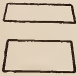
3. Drawing. Draw on the slate the horizontal circular tablet, first when resting on the desk, and then when raised from the desk by the model support.

Second Week.

1. Facts. Review locations, bisect, trisect, and quadrisect.
2. Drawing. Draw on the slate, from dictation, lines of definite lengths. Bisect, trisect, and quadrisect these lines.
3. Drawing. Draw on the slate Fig. 47 or 48.

Third Week.

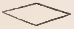
1. Drawing. Draw on the slate the horizontal circular tablet, when placed at each of two levels.



2. Drawing. Draw on the slate the horizontal square tablet, first when on the desk, and then when placed on the model support.

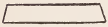
3. Drawing. Draw on the slate Fig. 42 or 43.

Fourth Week.

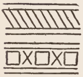


1. Drawing. Draw on the slate the horizontal square tablet, placed with its edges at angles with those of the desk.
2. Drawing. Draw on the slate Fig. 41 or 44.
3. Drawing. Draw on the slate Fig. 63.

Fifth Week.



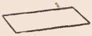
1. Drawing. Draw on the slate the oblong tablet, placed as illustrated.
2. Folding and Cutting. An illustrated talk by the teacher on folding and cutting to vary the square. See Color Manual, Part II, "Paper Folding and Cutting."



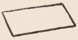
Suggestions.

3. Arrangement. Review repetition and alternation, and illustrate both by laying sticks to form a border.

Sixth Week.

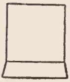


1. Drawing. Draw on the slate the horizontal oblong tablet, when its edges are at angles with those of the desk.
2. Drawing. Draw on the slate Fig. 71 or 72.



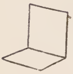
3. Drawing. Draw on the slate the horizontal square tablet, so placed that its edges are at angles with those of the desk.

Seventh Week.



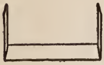
1. Facts. Review sphere, cube, and cylinder as to surfaces, edges, and corners.
2. Drawing. Combine the tablets as illustrated, and draw one or both on the slate.
3. Drawing. Draw on the slate Fig. 38 or 39.

Eighth Week.



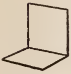
1. Drawing. Combine the tablets as illustrated, and draw one or both on the slate.

2. ARRANGEMENT. Arrange sticks upon the nearer portion of the desk, to form a simple border. Remove the sticks and draw the actual arrangement from memory on the slate.



3. DRAWING. Combine the tablets as illustrated, and draw one or all on the slate.

Ninth Week.



1. DRAWING. Draw on the slate Fig. 64 or 65.
2. DRAWING. Combine the tablets as illustrated, and draw one or both on the slate.

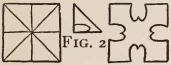


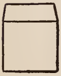
FIG. 1. FIG. 2 FIG. 3.

Suggestion.

3. FOLDING AND CUTTING. Trace around a $2\frac{1}{2}''$ square tablet on practice paper and cut. Fold on its diagonals and diameters, and make original variations by drawing and cutting.

Tenth Week.

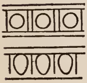
1. FACTS. Review half-sphere, half-cube, and half-cylinder, as wholes, by sight and touch.



2. DRAWING. Draw on the slate Fig. 73.
3. DRAWING. Combine the tablets to form the cube, and place as illustrated. Draw on the slate.

Eleventh Week.

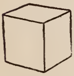
1. FACTS. Review half-sphere, half-cube, and half-cylinder as to surfaces and edges.
2. DRAWING. Draw on the slate from memory the circle, square, triangle, and semi-circle.



Suggestions.

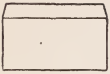
3. ARRANGEMENT. Arrange a border of tablets and sticks on the nearer portion of the desk. Remove, and draw freehand from memory on the slate.

Twelfth Week.

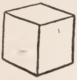


1. DRAWING. Combine the tablets as illustrated, and draw the whole or two vertical tablets on the slate.
2. COLOR. Color Manual, Lesson 1.
3. DRAWING. Draw on paper Fig. 64 or 65.

Thirteenth Week.

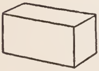


1. Drawing. Combine the tablets in the form of a prism, and draw on the slate.
2. Color. Color Manual, Lesson 2.



3. Drawing. Combine the tablets as illustrated, and draw the whole or two tablets on the slate.

Fourteenth Week.

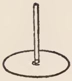


1. Drawing. Combine the tablets as illustrated, and draw the whole or two vertical tablets on the slate.
2. Color. Color Manual, Lesson 3.
3. Arrangement. Arrange a border of tablets, either oblongs and squares, or squares and semi-circles, on the nearer portion of the desk. Remove the tablets, and draw the actual arrangement from memory on the slate.

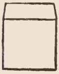
Fifteenth Week.

1. Facts. Teach cone. Teach axis and apex.
2. Color. Color Manual, Lesson 4.
3. Modeling. Model the cone.

Sixteenth Week.



1. Drawing. Combine a circular tablet with the rod, as illustrated, and draw on the slate.

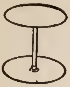


2. Drawing. Combine the tablets as illustrated, and draw on paper.
3. Folding and Cutting. Color Manual, Lesson 5.

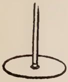
Seventeenth Week.

1. Color. Color Manual, Lesson 6.
2. Cutting. Color Manual, Lesson 7.
3. Pasting. Color Manual, Lesson 8.

Eighteenth Week.



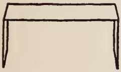
1. Drawing. Combine the tablets as illustrated, and draw on the slate.



2. Drawing. Review the cone, and draw on paper the object illustrated.
3. Modeling. Model any object similar to the cone.

Nineteenth Week.

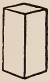
1. Facts. Review the square prism, right-angled triangular prism, and equilateral triangular prism.



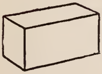
2. Drawing. Combine the tablets as illustrated, and draw all or two of the tablets on the slate.
3. Arrangement. Make a simple radial arrangement of tablets and sticks on the nearer portion of the desk. Remove the tablets, and draw the actual arrangement from memory on the slate.

Twentieth Week.

1. Drawing. Draw on the slate Fig. 74.



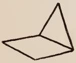
2. Drawing. Combine the tablets as illustrated, and draw the whole or a part of the object on the slate.



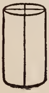
3. Drawing. Combine the tablets as illustrated and draw the whole or part of the object on the slate.

Twenty-first Week.

1. Drawing. Draw on the slate Fig. 66.

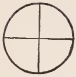


2. Drawing. Combine the tablets as illustrated and draw on the slate.



3. Modeling. Model the cylinder, and quadrisect as illustrated. Teach quarter-cylinder.

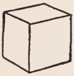
Twenty-second Week.



1. Cutting. Trace around a 2½″ circular tablet on practice paper and cut. Quadrisect the circle by folding and cutting.
2. Facts. Teach circumference, radius, and quadrant.
3. Color. Color Manual, Lesson 9.

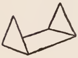
Twenty-third Week.

1. Drawing. Draw on paper Fig. 73 or 74.
2. Color. Color Manual, Lesson 10.



3. Drawing. Combine the tablets as illustrated and draw on paper.

Twenty-fourth Week.



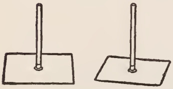
1. Drawing. Combine the tablets as illustrated, and draw one or all the tablets on the slate.
2. Arrangement. Make an original radial or border arrangement of tablets and sticks on the desk. Remove the tablets and draw from memory on the slate.
3. Folding and Cutting. Color Manual, Lesson 11.

Twenty-fifth Week.

1. Color. Color Manual, Lesson 12.
2. Cutting. Color Manual, Lesson 13.
3. Pasting. Color Manual, Lesson 14.

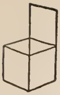
Twenty-sixth Week.

1. Facts. Teach the square pyramid. Teach isosceles triangle.



2. Drawing. Combine the square tablet and rod as illustrated, and draw two positions on the slate.
3. Modeling. Model the square pyramid.

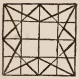
Twenty-seventh Week.



1. Drawing. Combine the tablets as illustrated and draw the whole or part of the object on the slate.
2. Drawing. Draw on the slate Figs. 67 and 68.
3. Modeling. Model any object similar to the square pyramid.

Twenty-eighth Week.

1. Facts. Review vertical, horizontal, oblique, parallel, and perpendicular, as applied to surfaces and edges.



2. Drawing. Give a dictation exercise, including lines in different positions.

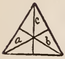


Fig. 1.

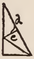


Fig. 2.

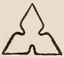


Fig. 3.

3. Folding and Cutting. Trace around a $2\frac{1}{2}''$ equilateral triangle on practice paper, and cut. Fold on *a*; unfold and fold on *b*, and fold on *c* after unfolding *b*. Draw and cut *d e*, of Fig. 2, and trace this unit to the other corners, and cut, to obtain Fig. 3. Encourage pupils to make original variations.

Twenty-ninth Week.

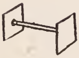
1. Facts. Review the cone and square pyramid, whole and parts.

2. Drawing. Draw on the slate from single tumblers, placed on pupils' desks.
3. Drawing. Draw on the slate Fig. 69. Teach quatrefoil.

Thirtieth Week.

1. Facts. Review the spheroids, ovoid, ellipse, and oval.
2. Color. Color Manual, Lesson 15.
3. Arrangement. Arrange a border of tablets and sticks upon the desk. Remove, and draw on paper from memory.

Thirty-first Week.



1. DRAWING. Combine the tablets as illustrated, and draw on the slate.

2. DRAWING. Draw on the slate Fig. 75 or 76.
3. CUTTING. Color Manual, Lesson 16.

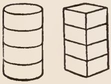
Thirty-second Week.

1. COLOR. Color Manual, Lesson 17.
2. }
3. } PASTING. Color Manual, Lessons 18 and 19.

Thirty-third Week.

1. DRAWING. Draw on the slate from single leaves so placed on the model support that their true shapes are seen.

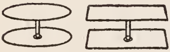
2. DRAWING. Draw on the slate the face views of single flowers.



3. MODELING. Part of the class model cylinders, and the rest square prisms whose axes are 3″ long. Place the objects vertically, and quadrisect them horizontally as illustrated. Each will form four plinths. Keep the forms, but do not give the names.

Thirty-fourth Week.

1. FACTS. Teach plinth. Teach circular and square plinths.



2. DRAWING. Combine the tablets as illustrated, and draw on the slate.

3. DRAWING. Place tin pails on boards across the aisles, and draw on paper.

Thirty-fifth Week.

1. DRAWING. Draw on the slate the side views of single flowers.
2. DRAWING. Draw on paper from single flowers.
3. DRAWING. Draw on paper any figure on Drawing Card 15.

Thirty-sixth Week.

1. FACTS. Review solids studied this year. Review diameter, radius, and quadrant by folding and cutting circles.
2. DRAWING. Children combine tablets to form any object they wish, and draw on paper.

3. DRAWING. Draw on paper from a group of two objects, one being spherical.

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